DETAILED ACTION

Response to Remarks

1. This Office action is considered fully responsive to the amendment filed 12/5/11.

2. The previous rejections to claim 12 under USC 101 and USC 112 have been withdrawn because the claim has been amended accordingly.

Response to Arguments

3. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection. Regarding claim 8, the Hiramatsu reference is still used to teach the portion Applicant argues at page 11 of the Remarks. Applicant alleges that multiplexing different types of data to be transmitted is not the same as determining whether or not to transmit data based on measured first channel quality of a control channel. The Examiner respectfully disagrees. As is seen in fig. 14, after the first and second channel qualities are determined, the multiplexing and transmission of MCS1 data occurs, which reads on "determines, in accordance with the measured first channel quality of the control channel, whether or not the channel quality information of the data channel is to be transmitted" because even though additional data is multiplexed and transmitted, the MCS1 data is part of this. The fact that the mobile station performs this step indicates that there is a determination of transmission to occur.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

> art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. **Claims 1-12** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Specifically, the currently amended independent **claims 1, 8, and 12** recite "wherein the first channel quality indicates an MCS, with which the control channel is to be received at a predetermined error probability, the second channel quality indicates an MCS, with which the data channel is to be received at a predetermined error probability." The instant specification at para. 0074 only mentions "channel quality estimation and measurement can be formed using...an MCS that enables a predetermined error rate to be achieved". This does not indicate that the MCS of a channel's quality indicates a predetermined error probability with which receiving occurs. It only mentions that this rate is "to be achieved".

Additionally, there is no mention of a "predetermined error probability" in the instant specification at all. Rather, para. 0074 of the instant specification mentions a "predetermined error rate".

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 1, 6, 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication No. 2004/0252670 A1 to *Rong et al. ("Rong")* in view of U.S. Publication No. 2005/0152279 A1 to *Robertson et al. ("Robertson")* and in further view of U.S. Patent No. 5,930,305 to *Leib*.

As to **claim 1**, *Rong* discloses a base station apparatus (fig. 5) comprising:

a reception section (fig. 5, item 64) that receives first channel quality of a control channel to transmit control information (para. 0029-0031, BS receives NACK that indicates proper reception over the control channel), and receives second channel quality of the data channel (para. 0029-0031, BS receives NACK that indicates failure of reception over the data channel), and the first channel quality is independently measured and different from the second channel quality (para. 0029-0031, control quality indicated success, data quality indicated failure, i.e. they differ);

a selection section (fig. 5, feedback circuitry 66, para. 0045, adjusts power level of transmissions to be sent from the BS) that selects, from among a plurality of mobile stations (para. 0004, MSs), a mobile station to which the data channel is assigned (para. 0029-0031, next transmission from the BS is to the same MS), the selection of the mobile station being in accordance with both the first channel quality of the control channel and the second channel quality of the data channel (para. 0029-0031, power levels are adjusted based on both data and control messages, subsequent transmission is to the same MS as before); and

a transmitting section that performs radio transmission of data to a selected mobile station (fig. 5, antenna 76, para. 0045, signals output to mobile station over antenna 76).

Rong does not expressly disclose which includes assignment information of a data channel or modulation and coding scheme (MCS) information, wherein the first channel quality indicates an MCS, with which the control channel is to be received at a predetermined error probability, the second channel quality indicates an MCS, with which the data channel is to be received at a predetermined error probability.

Robertson discloses measuring an SIR over a control channel and an SIR over a data channel based on received data (i.e. both first and second channel information pertaining to quality are received, quality indicates SIR) (abstract, fig. 4, para. 0014).

Rong and *Robertson* are analogous art because they are from the same field of endeavor regarding data communications.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to incorporate the measurements as disclosed by Robertson into the invention of Rong. The suggestion/motivation would have been to have downlink power control (Robertson, para. 0001).

Leib discloses modulation and coding schemes enable low error probability to be achieved for a given SIR (i.e. SIR indicate MCS pertaining to particular a particular probability) (col. 1, lines 25-37).

Rong, Robertson and *Leib* are analogous art because they are from the same field of endeavor regarding data communications.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to incorporate the MCS as disclosed by Leib into the invention of *Rong* and *Robertson*. The suggestion/motivation would have been to enable low error probability (Leib, col. 1, liens 25-37).

As to claim 6, *Rong, Robertson* and *Leib* further discloses the base station apparatus according to claim 1, wherein the selection section selects the mobile station to which the data channel is assigned, in accordance with channel quality of an uplink control channel for transmitting an acknowledgement (ACK) or a negative acknowledgement (NACK) (Rong, para. 0029-0031, transmitting to same mobile station based on NACK received indicating control channel quality, i.e. uplink as it is from MS to BS). In addition, the same suggestion/motivation of claim 1 applies.

As to **claim 12**, see similar rejection to claim 1. The apparatus teaches the method.

6. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication No. 2004/0252670 A1 to *Rong et al. ("Rong")* in view of U.S. Publication No. 2005/0152279 A1 to *Robertson et al. ("Robertson")* and U.S. Patent No. 5,930,305 to *Leib* and in further view of U.S. Publication No. 2003/0073409 A1 to *Nobukiyo et al. ("Nobukiyo")*.

As to claim 2, *Rong, Robertson* and *Leib* does not expressly disclose the base station apparatus according to claim 1, wherein the selection section selects the mobile station for which the first channel quality of the control channel is greater than or equal

to a threshold value set according to a total number of mobile stations currently accommodated by the base station apparatus.

Nobukiyo discloses in paras. 0131, 0154-0159, figs. 21 and 22, a mobile station transmits quality information after setting a control channel with the base station. The mobile station transmits this information if it has a reception quality greater than or equal to threshold "P". Threshold "P" is set based on a value "N" corresponding to the number of mobile stations which report reception quality.

Rong, Robertson and *Leib* and *Nobukiyo* are analogous art because they are from the same field of endeavor regarding data communications.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to incorporate the threshold value and quality reporting as disclosed by Nobukiyo into the invention of *Rong, Robertson* and *Leib*. The suggestion/motivation would have been to extend battery life and improve high speed packet transmission service with low error ratio (Nobukiyo, paras. 0154-0159).

7. **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication No. 2004/0252670 A1 to *Rong et al. ("Rong")* in view of U.S. Publication No. 2005/0152279 A1 to *Robertson et al. ("Robertson")* and U.S. Patent No. 5,930,305 to *Leib* and in further view of U.S. Publication No. 2004/0066754 A1 to *Hottinen et al. ("Hottinen")*.

As to claim 3, *Rong, Robertson* and *Leib* do not expressly disclose the base station apparatus according to claim 1, wherein the selection section selects a number of mobile stations in high-to-low order of the first channel quality of the control channel,

and the number of selected mobile stations is set according to a total number of mobile stations currently accommodated by the base station apparatus.

Hottinen discloses channel information for mobile stations that are in simultaneous connection with a base station 2 is fed back to the base station 2 over a control channel. Furthermore, based upon this information, the channel allocator differentiates between poor and good signal quality. Based upon this, a good quality mobile station is given a channel connection, and a poor quality mobile station is not given a channel connection, but is instead allocated this at a later time (para. 0044-0046).

Rong, Robertson and *Leib* and *Hottinen* are analogous art because they are from the same field of endeavor regarding data communications.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to incorporate the selection method as disclosed by Hottinen into the invention of *Rong, Robertson* and *Leib*. The suggestion/motivation would have been to maximize throughput or transmit efficiency (Hottinen, para. 0044-0046).

8. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication No. 2004/0252670 A1 to *Rong et al. ("Rong")* in view of U.S. Publication No. 2005/0152279 A1 to *Robertson et al. ("Robertson")* and U.S. Patent No. 5,930,305 to *Leib* and in further view of U.S. Patent No. 6,735,178 B1 to *Srivastava et al. ("Srivastava")*.

As to claim 4, *Rong, Robertson* and *Leib* does not expressly disclose the base station apparatus according to claim 1, wherein the selection section performs selection

in accordance with the second channel quality of the data channel after performing selection in accordance with the first channel quality of the control channel.

Srivastava discloses in fig. 2, col. 3, lines 14-20, measuring quality to destinations, and collecting latency information. After that, discarding bad links from consideration, and from the remaining links, calculating quality of throughput and selecting destination with highest quality throughput, i.e. selecting based on quality of one link factor first then, then selecting a destination based on quality of a different link factor from the remaining pool of destinations.

Rong, Robertson and *Leib* and *Srivastava* are analogous art because they are from the same field of endeavor regarding data communications.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to incorporate selection method as disclosed by Srivastava into the invention of *Rong, Robertson* and *Leib*. The suggestion/motivation would have been to maximize data throughput of a multiple radio system (Srivastava, col. 1, lines 6-9).

9. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication No. 2004/0252670 A1 to *Rong et al. ("Rong")* in view of U.S. Publication No. 2005/0152279 A1 to *Robertson et al. ("Robertson")* and U.S. Patent No. 5,930,305 to *Leib* and in further view of U.S. Publication No. 2004/0162073 A1 to *Yoneyama et al. ("Yoneyama")*.

As to claim 5, *Rong, Robertson* and *Leib* do not expressly disclose the base station apparatus according to claim 1, wherein the base station apparatus

accommodates communications with a plurality of mobile stations and a plurality of corresponding control channels, and

the selection section selects the mobile station to which the data channel is assigned, in accordance with the first channel quality of the control channel corresponding to the selected mobile station, wherein the control channel is a downlink individual channel.

Yoneyama discloses a mobile station selects one of a pluarlity of base stations with corresponding control channels based on the electric field strength of the control channels, i.e. and each control channel is a downlink individual channel as data transmitted from it is "downlink" and each control channel corresponds to one base station (abstract, para. 0002, 0018)—i.e. in this case the claimed base station is taken to be the "mobile station" and the claimed mobile stations are taken to be the "base stations" as the names of the nodes are not the concern rather the functionality performed by them.

Rong, Robertson and *Leib* and *Yoneyama* are analogous art because they are from the same field of endeavor regarding data communications.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to incorporate selection method as disclosed by Yoneyama into the invention of *Rong, Robertson* and *Leib*. The suggestion/motivation would have been to provide a mobile station that is surely assigned a traffic channel having an electric field strength at which transmission errors will rarely occur, and a base station for the mobile station (Yoneyama, para. 0017).

10. **Claims 8, 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication No. 2002/0136271 A1 to *Hiramatsu et al. ("Hiramatsu")* in view of U.S. Patent No. 5,991,285 to *Ghosh* and in further view of U.S. Patent No. 5,930,305 to *Leib*.

As to **claim 8**, *Hiramatsu* discloses a mobile station apparatus (fig. 14, para.0003-0004, 0134-0142, communication terminal) comprising:

a first estimating section that estimates a first channel quality of a control channel to receive control information (fig. 14, para.0003-0004, 0134-0142, a measuring section 1202 for measuring SIR of a CPICH (control channel) signal (control information)) including modulation and coding scheme (MCS) information (fig. 14, SIR is used in the process of MCS1 decision, i.e. the information of the SIR is MCS information), wherein the first channel quality indicates an MCS (fig. 14, para.0003-0004, 0134-0142, MCS1 decision section decides on MCS applicable to reception quality of DSCH signal and generates MCS1—based off of SIR of CIPCH);

a second estimating section that estimates a second channel quality of the data channel (fig. 14, para.0003-0004, 0134-0142, a SIR estimation section 1205 estimates reception quality for a DSCH (data channel) signal), wherein the second channel quality indicates an MCS (fig. 14, para.0003-0004, 0134-0142, MCS1 decision section decides on MCS applicable to reception quality of DSCH signal and generates MCS1—using information from section 1205), and the first channel quality is independently measured and different from the second channel quality (fig. 14, measuring section 1202 and SIR estimation section 1205 are separate, information is not the same);

a generation section that generates channel quality information from the estimated second channel quality of the data channel (fig. 14, para.0003-0004, 0134-0142, MCS1 decision section decides on MCS applicable to reception quality of DSCH signal and generates MCS1);

a determination section that determines, in accordance with the estimated first channel quality of the control channel, whether or not the channel quality information of the data channel is to be transmitted (fig. 14, para.0003-0004, 0134-0142, multiplexing section 1208 generates a multiplexed signal including MCS1 to be transmitted to base station, i.e. determines affirmatively).

Hiramatsu does not expressly disclose, a first *measuring* section that *measures, with which the control channel is to be received at a predetermined error probability, with which the data channel is to be received at a predetermined error probability,* a second *measuring* section that independently *measures*, from the *measured* channel quality, in accordance with the *measured* channel quality.

Ghosh col. 1, lines 20-34, mobile station transmits power control data bit (i.e. generated channel quality information) based on result of both control and communication (i.e. data) channels' measured SIRs.

Hiramatsu and *Ghosh* are analogous art because they are from the same field of endeavor regarding data communications.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to incorporate the measured SIRs as disclosed by Ghosh into the invention of

Hiramatsu. The suggestion/motivation would have been to transmit a power control data bit based on the SIR results (Ghosh, col. 1, lines 20-34).

Leib discloses modulation and coding schemes enable low error probability to be achieved for a given SIR (i.e. SIR indicate MCS pertaining to particular a particular probability) (col. 1, lines 25-37).

Hiramatsu, Ghosh and *Leib* are analogous art because they are from the same field of endeavor regarding data communications.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to incorporate the MCS as disclosed by Leib into the invention of *Hiramatsu and Ghosh.* The suggestion/motivation would have been to enable low error probability (Leib, col. 1, liens 25-37).

As to claim 10, *Hiramatsu, Ghosh,* and *Leib* further disclose the mobile station apparatus according to claim 8, wherein the first measuring section measures the first channel quality using a reception signal-to-interference ratio (SIR) of the control channel (Ghosh, a mobile station measures a signal-to-interference ratio of a code-demultiplexed control channel (col. 1, lines 20-34)). In addition, the same suggestion/motivation of claim 8 applies.

11. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication No. 2002/0136271 A1 to *Hiramatsu et al. ("Hiramatsu")* in view of U.S. Patent No. 5,991,285 to *Ghosh* and U. U.S. Patent No. 5,930,305 to *Leib* and in further view of U.S. Publication No. 2003/0073409 A1 to *Nobukiyo et al. ("Nobukiyo")*.

As to claim 9, *Hiramatsu, Ghosh,* and *Leib* do not expressly disclose the mobile station apparatus according to claim 8, wherein the determination section determines that the channel quality information is to be transmitted when the first channel quality of the control channel is greater than or equal to a threshold value, and determines that the channel quality information is not to be transmitted when the first channel quality of the control channel is less than the threshold value.

Nobukiyo discloses a mobile communication system in which the quality information of a control channel is reported when the reception quality of the mobile station is greater than or equal to the threshold value (paras. 0131, para. 0155).

Hiramatsu, Ghosh, Leib, and Nobukiyo are analogous art because they are from the same field of endeavor regarding data communications.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to incorporate the threshold value and quality reporting as disclosed by Nobukiyo into the invention of *Hiramatsu, Ghosh,* and *Leib*. The suggestion/motivation would have been to extend battery life and improve high speed packet transmission service with low error ratio (Nobukiyo, para. 0154-0155).

12. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over U U.S. Publication No. 2002/0136271 A1 to *Hiramatsu et al. ("Hiramatsu")* in view of U.S. Patent No. 5,991,285 to *Ghosh* and U.S. Patent No. 5,930,305 to *Leib* and in further view of U.S. Publication No. 2005/0037766 A1 to *Hans et al ("Hans")*.

As to claim 11, *Hiramatsu, Ghosh,* and *Leib* does not expressly disclose the mobile station apparatus according to claim 8, wherein the first measuring section

measures the first channel quality using required transmission power of the control channel.

Hans discloses channel measurement arrangement 10 selects the transmission channel that has the minimum transmission power and causes channel assignment arrangement 20 to subsequently use this transmission channel for first connection 41 instead of the corresponding transmission channel measured by connection quality arrangement 40, which has too low a connection quality (para. 0025), i.e. channel power measured for quality purposes, selecting the channel with minimum transmission power.

Hiramatsu, Ghosh, Leib and *Hans* are analogous art because they are from the same field of endeavor regarding data communications.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to incorporate the transmission power measurements as disclosed by Hans into the invention of *Hiramatsu, Ghosh,* and *Leib*. The suggestion/motivation would have been to select a channel to use based on quality (Hans, para. 0025).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to OMAR GHOWRWAL whose telephone number is (571)270-5691. The examiner can normally be reached on M-Th 10a.m.-8:30p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derrick Ferris can be reached on (571)272-3123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/O. G./
Examiner, Art Unit 2463

/Derrick W Ferris/
Supervisory Patent Examiner, Art Unit 2463